

Please type a plus sign (+) inside this box → ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	2825
				<b>Examiner Name</b>	
<b>Sheet</b>	1	of	7	<b>Attorney Docket Number</b>	SPLX.P0085

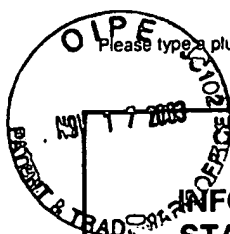
U.S. PATENT DOCUMENTS						
Examiner* Initials	Cite No.	U.S. Patent Document Number Kind Code <sup>2</sup> (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
VS	1.	2001/0009 031	A1	07-19-2001	Nitta et al.	
	2.	2002/0182 844	A1	12-05-2002	Igarashi et al.	
	3.	2003/0005 399	A1	01-02-2003	Igarashi et al.	
	4.	4,593,363		06-03-1986	Burstein et al.	
	5.	5,267,176		11-30-1993	Antreich et al.	
	6.	5,566,078		10-15-1996	Ding et al.	
	7.	5,587,923		12-24-1996	Wang	
	8.	5,618,744		04-08-1997	Suzuki et al.	
	9.	5,635,736		06-03-1997	Funaki et al.	
	10.	5,637,920		06-10-1997	Loo	
	11.	5,640,327		06-17-1997	Ting	
	12.	5,663,891		09-02-1997	Bamji et al.	
	13.	5,757,089		05-26-1998	Ishizuka	
	14.	5,784,289		07-21-1998	Wang	
	15.	5,798,936		08-25-1998	Cheng	
	16.	5,838,583		11-17-1998	Varadarajan et al.	
	17.	5,889,677		03-30-1999	Yasuda et al.	
	18.	5,980,093		11-09-1999	Jones et al.	
	19.	6,070,108		05-30-2000	Andreev et al.	Not print Dup
VS	20.	6,128,767		10-03-2000	Chapman	

<b>Examiner Signature</b>	WTHE SLER	<b>Date Considered</b>	1/12/2004
-------------------------------	-----------	----------------------------	-----------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO				Application Number	10/046,926
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	2	of	7	Attorney Docket Number	SPLX.P0085

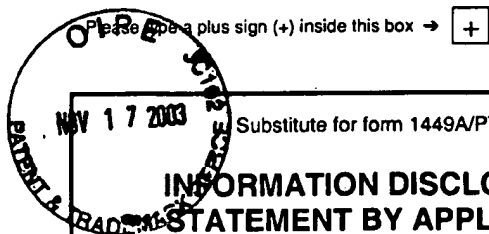
U.S. PATENT DOCUMENTS						
VS	21.	6,150,193		11-21-2000	Glenn	
	22.	6,209,123	B1	03-27-2001	Maziasz et al.	
	23.	6,219,832	B1	04-17-2001	Buzbee	
	24.	6,226,560	B1	05-01-2001	Hama et al.	
	25.	6,249,902	B1	06-19-2001	Igusa et al.	
	26.	6,253,363	B1	06-26-2001	Gasarov et al.	
	27.	6,295,634	B1	09-25-2001	Matsumoto	
	28.	6,307,256		10-23-2001	Chiang et al.	
	29.	6,316,838	B1	11-13-2001	Ozawa et al.	
	30.	6,324,674	B2	11-27-2001	Andreev et al.	
	31.	6,324,675	B1	11-27-2001	Dutta et al.	
	32.	6,327,693	B1	12-04-2001	Cheng et al.	
	33.	6,330,707	B1	12-11-2001	Shinomiya et al.	
	34.	6,407,434	B1	06-18-2002	Rostoker et al.	
	35.	6,415,422	B1	07-02-2002	Mehrotra et al.	Not Print Dup.
	36.	6,442,743	B1	08-27-2002	Sarrafzadeh et al.	
	37.	6,448,591	B1	09-10-2002	Juengling	
	38.	6,473,891	B1	10-29-2002	Shively	
	39.	6,480,991	B1	11-12-2002	Cho et al.	Not Print Dup
	40.	6,490,713	B2	12-03-2002	Matsumoto	
	41.	6,519,751	B2	02-11-2003	Sriram et al.	
	42.	6,543,043	B1	04-01-2003	Wang et al.	
VS	43.	6,546,540	B1	04-08-2003	Igarashi et al.	

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Substitution for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	10/046,926
				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	3	of	7	Attorney Docket Number	SPLX.P0085

U.S. PATENT DOCUMENTS						
VS	44.	6,557,145	B2	04-29-2003	Boyle et al.	
VS	45.	6,567,967	B2	05-20-2003	Greidinger et al.	

FOREIGN PATENT DOCUMENTS								
Examiner* Initials	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Cod (if known)				
VS	46.	JP	411296560	A	Matsumoto et al.	10-29-1999	with English translation of Abstract;	
	47.	JP	2000-82743	A	Igarashi et al.	03-21-2000	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.	√
	48.	JP	H03-173471	A	Tawada et al.	07-26-1991	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.	√
	49.	JP	H05-243379	A	Masako Kubota	09-21-1993	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.	√
VS	50.	JP	H05-102305	A	Akihiro Sato	04-23-1993	with Japanese Patent Office's English translation of Abstract; and with English translation of the	√

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

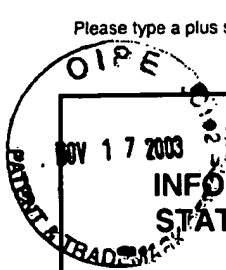
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please type a plus sign (+) inside this box → +

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number



Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	2825
				<b>Examiner Name</b>	
<b>Sheet</b>	4	of	7	<b>Attorney Docket Number</b>	SPLX.P0085

FOREIGN PATENT DOCUMENTS							
							application.
✓	51.	JP	H07-86407	A	Shinpei Miura	03-31-1995	with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓
✓	52.	JP	H09-162279	A	Masaaki Yoshida	06-20-1997	with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓

<b>Examiner Signature</b>	VUTHE STEK	<b>Date Considered</b>	1/12/04
---------------------------	------------	------------------------	---------

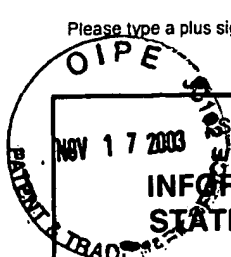
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please type a plus sign (+) inside this box → +

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number



Substitution for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	10/046,926
				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	5	of	7	Attorney Docket Number	SPLX.P0085

FOREIGN PATENT DOCUMENTS				
NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>	
V5	53.	Ahuja, R. et al., Faster Algorithms for the Shortest Path Problem, Journal of the Association for Computing Machinery, vol. 37, No. 2, April 1990, pp. 213-223.		
f	54.	Brady, L. et al., Channel Routing on a 60° Grid, extended abstract, pp. 956-931. <span style="float: right;">No date</span>		
	55.	Brambilla, A. et al., Statistical Method for the Analysis of Interconnects Delay in Submicrometer Layouts, IEEE, 8/2001, pp. 957-966.		
	56.	Carothers, K., A Method of Measuring Nets Routability for MCM's General Area Routing Problems, 1999, pp. 186-192.		
	57.	Chen, H. et al., Physical Planning of On-Chip Interconnect Architectures, 2002, IEEE, International Conference, pp. 30-35.		
	58.	Cheng, K., Steiner Problem in Octilinear Routing Model, a Thesis Submitted for the Degree of Master of Science, National University Singapore, 1995, pp. 1-122.		
	59.	Chip Model with Wiring Cost Map, August 1983, IBM Technical Disclosure Bulletin, vol. 26, iss. 3A, pp. 929-933.		
	60.	Cong, J. et al., Efficient Heuristics for the Minimum Shortest Path Steiner Arborescence Problem with Applications to VLSI Physical Design, Cadence Design Systems and UCLA Computer Science Department, pp.88-95. <span style="float: right;">No date</span>		
	61.	Cong, J. et al., Performance-Driven Multi-Layer General Routing for PCB/MCM Designs, UCLA Computer Science Department, 1998, pp. 356-361.		
	62.	Enbody, R. et al., Near-Optimal n-Layer Channel Routing, 23 <sup>rd</sup> Design Automation Conference, 1986, pp. 708-714.		
	63.	Fang, S. et al., Constrained Via Minimization with Practical Considerations for Multi-Layer VLSI/PCB Routing Problems, 28 <sup>th</sup> ACM/IEEE Design Automation Conference, 1991, pp. 60-65.		
	64.	Hom, I. et al., Estimation of the Number of Routing Layers and Total Wirelength in a PCB Through Wiring Distribution Analysis, 1996, pp. 1-6.		
V7	65.	Hong, X. et al., Performance-Driven Steiner Tree Algorithms for Global Routing, 30 <sup>th</sup> ACM/IEEE Design Automation Conference, 1993, pp. 177-181.		

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

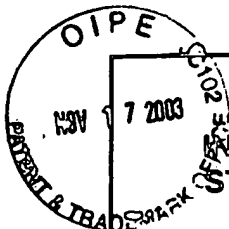
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please type a plus sign (+) inside this box → ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number



Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Applicati n Number	10/046,926
				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	6	of	7	Attorney Docket Number	SPLX.P0085

FOREIGN PATENT DOCUMENTS		
66.	Hu, J. et al., A Timing-Constrained Algorithm for Simultaneous Global Routing of Multiple Nets, IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA, USA, 5-9 Nov. 2000, pp.99-103.	
67.	Kastner, R. et al, Predictable Routing, IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA, USA, 5-9 Nov. 2000. pp. 110-113.	
68.	Khoo, K. et al., An Efficient Multilayer MCM Router Based on Four-Via Routing, 30 <sup>th</sup> ACM/IEEE Design Automation Conference, 1993, pp. 590-595.	
69.	Lillis, J. et al., Table-Lookup Methods for Improved Performance-Driven Routing, 1998, pp. 368-373.	
70.	Lipski, W. et al., A Unified Approach to Layout Wirability, Mathematical Systems Theory, 1987, pp. 189-203.	
71.	Lodi, E. et al., A Preliminary Study of a Diagonal Channel-Routing Model, Algorithmica, 1989, pp.585-597.	
72.	Lodi, E. et al., Lecture Notes in Computer Science, A 4d Channel Router for a Two Layer Diagonal Model, pp. 464-476, July 1988.	
73.	Naclerio, N. et al., Via Minimization for Gridless Layouts, 24 <sup>th</sup> ACM/IEEE Design Automation Conference, 1987, pp. 159-165.	
74.	Nam, G. et al, Satisfiability-Based Layout Revisited: Detailed Routing of Complex FPGAs Via Search-Based Boolean SAT, 1999, pp. 167-175..	
75.	Oh, J. et al., Constructing Lower and Upper Bounded Delay Routing Trees Using Linear Programming, 33 <sup>rd</sup> Design Automation Conference, 1996.	
76.	Partitioning Logic on to Graph Structure, IBM Technical Disclosure Bulletin, February 1990, vol. 32, iss. 9A, pp. 469-475.	
77.	Phillips, N., Channel Routing by Constraint Logic, Department of Computer Science Southern Illinois University, ACM, 1992.	
78.	Takashima, Y. et al, Routability of FPGAs with Extremal Switch-Block Structures, IEICE Trans. Fundamentals, vol. E81-A, No. 5, May 1998, pp. 850-856.	

Examiner Signature	VUTHE SIEK	Date Considered	1/12/02
--------------------	------------	-----------------	---------

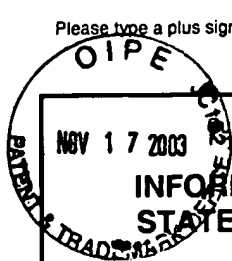
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please type a plus sign (+) inside this box → ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number



Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Applicati n Number	10/046,926
				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	2825
				Examiner Name	
Sheet	7	of	7	Attorney Docket Number	SPLX.P0085

FOREIGN PATENT DOCUMENTS			
VS	79.	Thakur, S. et al., Algorithms for a Switch Module Routing Problem, 1994, pp. 265-270.	
	80.	Theune, D. et al., HERO: Hierarchical EMC-constrained routing, 11/1992, IEEE pp 468-472	
	81.	Tseng, H., Timing and Crosstalk Driven Area Routing, pp. 378-381. No date	
	82.	Wang, D., Novel Routing Schemes for IC Layout, Part I: Two-Layer Channel Routing, 28 <sup>th</sup> ACM/IEEE Automation Conference, 1991, pp. 49-53.	
	83.	Wang, M. et al., Modeling and Minimization of Routing Congestion, Jan. 2000, IEEE proceedings of ASP-DAC, Asia and South Pacific, pp. 185-190.	
	84.	Wood, G. et al., FPGA Routing and Routability Estimation Via Boolean Satisfiability, Department of Electrical and Computer Engineering Carnegie Mellon University, Pittsburgh, PA, pp. 119-125. No date	
	85.	Zhang, C.X. et al., Floorplan Design Using a Hierarchical Neutral Learning Algorithm, IEEE, 6/1991. pp. 2060-2063.	
	86.	Zhou, H. et al., An Optimal Algorithm for River Routing with Crosstalk Constraints, 1996.	
	87.	Zhou, H. et al., Global Routing with Crosstalk Constraints, Department of Computer Sciences, University of Texas, 1998, pp. 374-377.	
VS	88.	Zhou, H. et al., Optimal River Routing with Crosstalk Constraints, ACM Transactions on Design Automation of Electronic Systems, vol. 3, No. 3, July 1998, pp. 496-514.	

Examiner Signature	VWTHE SREK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Please type a plus sign (+) inside this box ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	
				<b>Examiner Name</b>	
<b>Sheet</b>	1	of	1	<b>Attorney Docket Number</b>	SPLX.P0085

U.S. PATENT DOCUMENTS						
Examiner* Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Related Application Data
		Number				
VS	1.	2003/0101428 S/N 10/040,915		01-05-2002	Steven Teig et al.	Previously Specified
[Handwritten vertical line]	2.	2003/0043827 S/N 10/040,953		01-05-2002	Steven Teig et al.	Previously Specified
	3.	2003/0023943 S/N 10/040,954		01-05-2002	Steven Teig et al.	Previously Specified
	4.	2003/0066042 S/N 10/040,963		01-05-2002	Steven Teig et al.	Previously Specified
	5.	2002/0174412 S/N 10/041,942		01-07-2002	Steven Teig et al.	Previously Specified
	6.	2003/0088844 S/N 10/041,957		01-07-2002	Steven Teig et al.	Previously Specified
	7.	2002/0199165 S/N 10/046,864		01-13-2002	Steven Teig et al.	Previously Specified
	8.	2003/0056187 S/N 10/047,982		01-14-2002	Steven Teig et al.	Previously Specified
	9.	2002/0073390 S/N 09/737,210		12-13-2000	Steven Teig et al.	Previously Specified
	10.	2002/0124231 S/N 09/739,580		12-15-2000	Steven Teig et al.	Previously Specified
	11.	2003/0121015 S/N 09/745,067		12-19-2000	Steven Teig et al.	Previously Specified
	12.	2002/0166105 S/N 10/040,948		01-05-2002	Steven Teig et al.	Previously Specified
	13.	2003/0088841 S/N 10/329,241		12-23-2002	Steven Teig et al.	Previously specified
	VS	14.	2003/0088845 S/N 10/047,978		01-13-2002	Steven Teig et al.

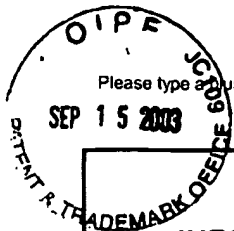
<b>Examiner Signature</b>	<i>Har VUTHE STEK</i>	<b>Date Considered</b>	1/12/04
-------------------------------	-----------------------	----------------------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.





Please type a plus sign (+) inside this box ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	
				<b>Examiner Name</b>	
<b>Sheet</b>	1	of	1	<b>Attorney Docket Number</b>	SPLX.P0085

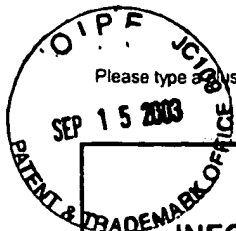
RELATED U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document	Date of filing MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Related Application Data
		Number			
VS	1.	2003/0079193	12-07-2001	Steven Teig et al.	Parent application of the parent application (2003/0088844) of the present application.
	2.	2003/0018947	12-07-2001	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	3.	2002/0147958	10-19-2001	Steven Teig et al.	Parent application per the preliminary amendment dated 2/19/03.
	4.	2003/0063614	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	5.	2003/0064559	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	6.	2003/0063568	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	7.	2003/0101428	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
	8.	2002/0166105	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
	9.	2003/0043827	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
	10.	2003/0023943	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
	11.	2003/0066042	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
	12.	2002/0174412	01-07-2002	Steven Teig et al.	Continuation of 2003/0079193.
VS	13.	2003/0088844	01-07-2002	Steven Teig et al.	Per the preliminary amendment dated 5/7/03, the present application is a continuation of 2003/0088844, which is a continuation of 2003/0079193.

<b>Examiner Signature</b>	VUTHE SUEK	<b>Date Considered</b>	1/14/04
---------------------------	------------	------------------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Please type (+) inside this box ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	
				<b>Examiner Name</b>	
<b>Sheet</b>	2	of	2	<b>Attorney Docket Number</b>	SPLX.P0085

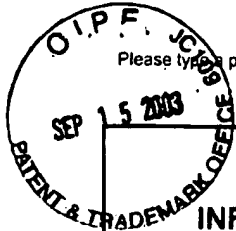
RELATED U.S. PATENT DOCUMENTS					
V/C	14.	2002/0199165	01-13-2002	Steven Teig et al.	Continuation of 2003/0079193.
	15.	2003/0115566	01-13-2002	Steven Teig	Continuation of 2003/0088844 per preliminary amendment.
	16.	2003/0056187	01-14-2002	Steven Teig et al.	Continuation of 2003/0079193.
	17.	2003/0066044	01-13-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	18.	2003/0066045	01-13-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	19.	2002/0133798	12-06-2000	Steven Teig et al.	Application regarding related placement technology
	20.	2002/0100007	12-06-2000	Steven Teig et al.	Application regarding related placement technology
	21.	2002/0073390	12-13-2000	Steven Teig et al.	Application regarding related placement technology
	22.	S/N 09/737,220	12-13-2000	Steven Teig et al.	Application regarding related placement technology
	23.	S/N 09/737,245	12-13-2000	Steven Teig et al.	Application regarding related placement technology
	24.	S/N 09/739,460	12-15-2000	Steven Teig et al.	Application regarding related placement technology
	25.	2002/0124231	12-15-2000	Steven Teig et al.	Application regarding related placement technology
	26.	S/N 09/739,589	12-15-2000	Steven Teig et al.	Application regarding related placement technology
	27.	S/N 09/742,171	12-19-2000	Steven Teig et al.	Application regarding related placement technology
	28.	2003/0121015	12-19-2000	Steven Teig et al.	Application regarding related placement technology
	29.	2002/0069397	01-13-2002	Steven Teig et al.	Application regarding related placement technology
V/S	30.	2002/0170027	02-20-2002	Steven Teig et al.	Application regarding related placement

<b>Examiner Signature</b>	NUTHE SIEK	<b>Date Considered</b>	1/12/04
---------------------------	------------	------------------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



Please type a plus sign (+) inside this box ☐

Based on PTO/SB/08 a & b (05-03)  
Approved for use through 05/31/2003. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				<b>Application Number</b>	10/046,926
				<b>Filing Date</b>	1/13/02
				<b>First Named Inventor</b>	Steven Teig
				<b>Group Art Unit</b>	
				<b>Examiner Name</b>	
<b>Sheet</b>	3	of	3	<b>Attorney Docket Number</b>	SPLX.P0085

RELATED U.S. PATENT DOCUMENTS						
						technology
VS	31.	2002/0157075	02-20-2002	Steven Teig et al.	Application regarding related placement technology	
VS	32.	2003/0088841	12-23-2002	Steven Teig et al.	Application regarding related placement technology	

RECEIVED  
SEP 17 2003  
TC 2800 MAIL ROOM

<b>Examiner Signature</b>	VUTHE STEK	<b>Date Considered</b>	1/14/04
---------------------------	------------	------------------------	---------

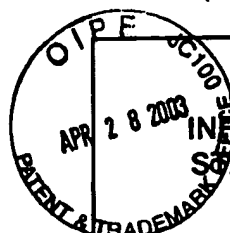
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number(optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please type a plus sign (+) inside this box +

PTO/SB/08A (08-00) - MODIFIED  
Approved for use through 10/31/2002. OMB 0651-0031  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE



Substitute for form 1449A/PTO				Application Number	10/046,926
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	
				Examiner Name	
Sheet	1	of	1	Attorney Docket Number	SPLX.P0085

U.S. PATENT DOCUMENTS						
Examiner* Initials	Cite No. <sup>1</sup>	U.S. Patent Document Number      Kind Code <sup>2</sup> (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
VC	1.	2001/ 0003843	A1	Scepanovic et al.	06-14-01	
	2.	4,615,011		Linsker	09-30-86	
	3.	4,673,966		Shimoyama	06-16-87	
	4.	4,782,193		Linsker	11-01-88	
	5.	4,855,929		Nakajima	08-08-89	
	6.	5,097,422		Corbin II et al.	03-17-92	
	7.	5,251,147		Finnerty	10-05-93	
	8.	5,281,151		Arima et al.	01-25-94	
	9.	5,360,948		Thornberg	11-01-94	
	10.	5,375,069		Satoh et al.	12-20-94	
	11.	5,532,934		Rostoker	07-02-96	
	12.	5,578,840		Scepanovic	11-26-96	
	13.	5,633,479		Hirano	05-27-97	
	14.	5,634,093		Ashida et al.	05-27-97	
	15.	5,636,125		Rostoker et al.	06-03-97	
	16.	5,650,653		Rostoker et al.	07-22-97	
	17.	5,657,242		Sekiyama et al.	08-12-97	
	18.	5,723,908		Fuchida et al.	03-03-98	
	19.	5,742,086		Rostoker et al.	04-21-98	
	20.	5,757,656		Hershberger et al.	05-26-98	
	21.	5,777,360		Rostoker et al.	07-07-98	
	22.	5,811,863		Rostoker et al.	09-22-98	
	23.	5,822,214		Rostoker et al.	10-13-98	
	24.	5,859,449		Kobayashi et al.	01-12-99	
VS	25.	5,898,597		Scepanovic et al.	04-27-99	

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
-----------------------	------------	--------------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box ☐



Substitute for form 1449A/PTO				Application Number	10/046,926
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	SPLX.P0085

U.S. PATENT DOCUMENTS						
VS	26.	5,914,887		Scepanovic et al.	06-22-99	
	27.	5,973,376		Rostoker et al.	10-26-99	
	28.	6,035,108		Kikuchi	03-07-00	
	29.	6,058,254		Scepanovic et al.	05-02-00	
	30.	6,067,409		Scepanovic et al.	05-23-00	
	31.	6,068,662		Scepanovic et al.	05-30-00	
	32.	6,123,736		Pavisic et al.	09-26-00	
	33.	6,134,702		Scepanovic et al.	10-17-00	
	34.	6,155,725		Scepanovic et al.	12-05-00	
	35.	6,175,950	B1	Scepanovic	01-16-01	
	36.	6,216,252	B1	Dangelo et al.	04-10-01	
	37.	6,230,306	B1	Raspopovic et al.	05-08-01	
	38.	6,247,167	B1	Raspopovic et al.	06-12-01	
	39.	6,260,179	B1	Ohsawa et al.	07-10-01	
	40.	6,262,487	B1	Igarashi et al.	07-17-01	
	41.	6,289,495	B1	Raspopovic	09-11-01	
	42.	6,301,686	B1	Kikuchi et al.	10-09-01	
	43.	6,327,694	B1	Kanazawa	12-04-01	
	44.	6,378,121	B2	Hiraga	04-23-02	
	45.	6,385,758	B1	Kikuchi et al.	05-07-02	
	46.	6,401,234	B1	Alpert et al.	06-04-02	
	47.	6,405,358	B1	Nuber	06-11-02	
	48.	6,412,097	B1	Kikuchi et al.	06-25-02	
	49.	6,412,102	B1	Andreev et al.	06-25-02	
	50.	6,436,804	B2	Igarashi et al.	08-20-02	
	51.	6,446,245	B1	Xing et al.	09-03-02	
VS	52.	6,516,455	B1	Teig et al.	02-04-03	

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box ☐

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet	3	of	3	Application Number	10/046,926
				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	
				Examiner Name	
				Attorney Docket Number	SPLX.P0085

**U.S. PATENT DOCUMENTS**

15	53.	6,516,455	B1	Teig et al.	02-04-03	
15	54.	2003/0025 205	A1	Shively	02-06-03	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code (if known) <sup>5</sup>				
15	55.	JP	64-15947		Ouchi	01-19-89		
15	56.	JP	04000677		Fujiwara et al.	01-1992		

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
-----------------------	------------	--------------------	---------

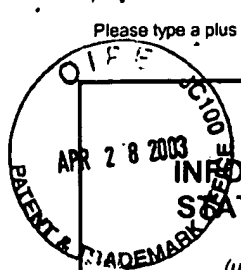
\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

<sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box ☐

PTO/SB/08A (08-00) - MODIFIED  
Approved for use through 10/31/2002. OMB 0851-0031  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE



Substitute for form 1449A/PTO				Application Number	10/046,926
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Filing Date	1/13/02
				First Named Inventor	Steven Teig
				Group Art Unit	
				Examiner Name	
Sheet	4	of	4	Attorney Docket Number	SPLX.P0085

#### OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner* Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
VC	57.	A.H. Farrahi, et al., Quality of EDA CAD Tools: Definitions, Metrics and Directions, Quality Electronic Design, 2000, Proceedings of the first International Symposium on March 2000, pp 395-405.	
	58.	A. Vannelli, et al., An adaptation of the interior point method for solving the global routing problem, 2/1991, IEEE pp 193-203.	
	59.	B. Berger, et al., Nearly Optimal Algorithms and Bounds for Multilayer Channel Routing, Journal of the Association for Computing Machinery, pp. 500-542, March 1995.	
	60.	C. Chiang, et al., Wirability of Knock-Knee Layouts with 45° Wires, IEEE Transactions on Circuits and Systems, Vol. 38, Issue 6, pp 613-624, June 1991.	
	61.	G. Overtone, EDA Underwriter 2 Finding Space in a Multi Layer Board, Electronic Engineering, Morgan-Grampian LTD, vol. 67, No. 819, pp 29-30.	
	62.	G.D. Hachtel et al., Linear Complexity Algorithms for Hierarchical Routing, 1/89, IEEE pp 64-80.	
	63.	J.D. Cho, et al., Four-Bend Top Down Global Routing, IEEE, pp 793-802, 1998.	
	64.	J. Su et al., Post Route Optimization for Improved Yield Using Rubber-Band Wiring Model, 1997 International Conference on Computer-Aided Design, pp 700-706, November 1997.	
	65.	J. Vicente, RSR: A New Rectilinear Steiner Minimum Tree Approximation for FPGA Placement and Global Routing, Proceedings of the 24 <sup>th</sup> Euro Micro Conference, pp 192-195, August 1998.	
	66.	K. Powers et al., The 60° Grid: Routing Channels in Width d/square root 3, VLSI, 1991, Proceedings., First Great Lakes Symposium on Kalamazoo, MI, USA, pp 214-291, March 1991.	
	67.	M. Alexander et al., Performance-Oriented Placement and Routing for field-programmable gate arrays, Proceedings of the European Design Automation Conference, pp 80-85, 1995.	
	68.	M. Alexander et al., Placement and Routing for Performance-Oriented FPGA Layout, VLSI Design, Vol. 7, No. 1, 1998.	
	69.	M. Igarashi et al., A Diagonal-Interconnect Architecture and Its Application to RISC Core Design, 2002 IEEE Solid-State Circuits Conference, pp 210-460, February 2002.	
	70.	P. Dood, et al., A Two-Dimensional Topological Compactor with Octagonal Geometry, 28 <sup>th</sup> ACM/IEEE Design Automation Conference, pp 727-731, July 1991	
	71.	P. Parakh, et al., Congestion Driven Quadratic Placement, Proceedings of Design Automation Conference, 1998, pp 275-278.	
VS	72.	R. Putatunda et al., VITAL: Fully Automatic Placement Strategies for Very Large Semicustom Designs, Proceedings of the International Conference on Computer Design: VLSI in Computers and Processors, pp 434-439 October 1988.	

Examiner Signature	VUTHE SLEK	Date Considered	7/12/04
-----------------------	------------	--------------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

<sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Please type a plus sign (+) inside this box +

PTO/SB/08A (08-00) - MODIFIED  
Approved for use through 10/31/2002. OMB 0851-0031  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO		Application Number	10/046,926
		Filing Date	1/13/02
		First Named Inventor	Steven Teig
		Group Art Unit	
		Examiner Name	
		Attorney Docket Number	SPLX.P0085

APR 28 2003  
PATENT & TRADEMARK OFFICE

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet	5	of	5
-------	---	----	---

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
VS	73.	S. Dutt, et al., Probability-Based Approaches to VLSI Circuit Partitioning, IEEE Trans. On Computer Aided Design of IC's and Systems, Vol. 19, No. 5, May 2000, pp 534-549.	
	74.	Y. Sekiyama et al., Timing-Oriented Routers for PCB Layout Design of High-Performance Computers, International Conference on Computer Aided Design, pp 332-335, November 1991.	
	75.	C. Leiserson et al., Algorithm for Routing and Testing Routability of Planar VLSI Layouts, pp 69-78, May 1985.	
	76.	S. Das et al., Channel Routing in Manhattan-Diagonal Model, 9 <sup>th</sup> International Conference on VLSI Design, January 1996. pp 43-48.	
	77.	W. Wei-Ming Dai et al., Routability of a Rubber-Band Sketch. 28 <sup>th</sup> ACM/IEEE Design Automation Conference, 1991. pp 45-65.	
	78.	H. Chen, Routing L-Shaped Channels in Nonslicing-Structure Placement. 24 <sup>th</sup> ACM/IEEE Design Automation Conference, pp 152-165, 1987.	
	79.	I. Tollis, Techniques for Wiring in Non-Square Grids, pp 66-69. May 1989.	
	80.	E. Lodi et al., A 2d Channel Router for the Diagonal Model, pp 111-125, April 1991.	
	81.	E. Lodi et al., Routing in Times Square Mode, pp 41-48, June 1990.	
	82.	K. Cheng-Kok et al., Manhattan or Non Manhattan? A Study of Alternative VLSI Routing Architectures. pp 47-52, 2000	
	83.	E. Lodi et al., Routing Multiterminal Nets in a Diagonal Model, pp 899-902, 1988.	
	84.	D. Staepelaere et al., Surf: A Rubber-Band Routing System for Multichip Modules. pp 18-26, 1993.	
	85.	S. Das et al., Routing of L-Shaped Channels, Switch boxes and Staircases in Manhattan-Diagonal Model, pp 65-70m January 1998.	
	86.	W. Schiele et al., A Gridless Router for Industrial Design Rule, 27 <sup>th</sup> ACM/IEEE Design Automation Conference, pp 626-631, 1990.	
VS	87.	J. Nester, A New Look at Hardware Maze Routing, Proceedings of the 12 <sup>th</sup> ACM Symposium on Great Lakes Symposium on VLSI, pp 142-147, April 2002.	

Examiner Signature	VUTHE SIEK	Date Considered	1/12/04
--------------------	------------	-----------------	---------

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

<sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.